CHAOS, SOLITONS and FRACTALS
applications in science and engineering

VOLUME 3 CONTENTS

VOLUME 3 NUMBER 1 **1993**

S. S. Elnashaie, M. E. Abashar and **F. A. Teymour**	1	Bifurcation, instability and chaos in fluidized bed catalyticreactors with consecutive exothermic chemical reactions
J. Wojewoda, T. Kapitaniak, R. Barron and **J. Brindley**	35	Complex behaviour of a quasiperiodically forced experimental system with dry friction
Fa-Geng Xie and **Bai-Lin Hao**	47	Symbolic dynamics of the sine-square map
L. S. Brizhik	61	Bisolitons in a layered crystal
C. J. Griffin and **G. C. Joshi**	67	Transition points in octonionic Julia sets
M. S. El Naschie	89	On certain infinite dimensional Cantor sets and the Schrödinger wave
T. Puu	99	Pattern formation in spatial economics
	131	Announcement
	I	Sample layout for camera-ready copy submission

VOLUME 3 NUMBER 2 **1993**

F. Chapeau-Blondeau	133	Analysis of neural networks with chaotic dynamics
M. C. Kube, O. E. Rossler and **J. L. Hudson**	141	A "superfat" chaotic attractor
M. A. Sattar and **M. R. Islam**	149	Flow instability in a large aspect ratio porous medium with an internal heat source
M. O. Vlad	171	A branched chain on a branched chain approach to fractal random flights
R. Tiebel, F.-J. Schütte and **M. Mareyen**	177	Chaotic motion of the density operator for an exciton–photon system
D. J. Biswas	185	Anomalous response of a single mode frequency modulated laser at the line centre
Y. Yamaguchi and **K. Tanikawa**	193	Structure change of stable and unstable manifolds in two- dimensional maps II. Island-merging and boundary crisis

M. Giona	203	Some observations on quantum mechanics in disordered systems
Xiaowei Wang, Lianke Dong and **C. W. Lung**	211	Perimeter–area relation and measurement of Hausdorff dimensionality
G. H. M. van der Heijden	219	Bifurcation and chaos in drillstring dynamics
J. Szczesny, M. Szydlowski and **A. Krawiec**	249	Measure of rates of separation of trajectories from thegeodesic deviation equation in a Fermi basis—an analytical approach
G. M. Guazzo	257	A 'morphogenetic' model of learning
F. Montero de Espinosa, M. Torres, G. Pastor, M. A. Muriel and **A. L. MacKay**	265	An acoustic quasi-crystalline wave-field
	I	Sample layout for camera-ready copy submission

VOLUME 3 NUMBER 3 **1993**

B. Bernstein, M. Karamolengos and **T. Erber**	269	Sneaky plasticity and mesoscopic fractals
K. Narita	279	Soliton solution for a highly nonlinear difference–differential equation
D. Mukesh	285	Modelling of Belousov–Zhabotinskii reaction on a surface
Mo-Zheng Wei and **J. S. Dowker**	295	Chaotic streamlines and a strange nonchaotic attractor in divergence-free flows on the 3-sphere
C. J. Griffin and **G. C. Joshi**	307	Associators in generalized octonionic maps
P. J. Werbos	321	Chaotic solitons in conservative systems: can they exist?
G. Q. Pellegrino, K. Furuya and **M. C. Nemes**	327	Quantal and classical manifestations of symmetry breaking in the integrable two-spin system
J. Gratton, M. A. Alabraba, A. G. Warmate and **G. Giudice**	343	Deterministic dynamics of plasma focus discharges
M. S. El Naschie	361	Internal Cantor distance and entropy of multi-dimensional Peano–Hilbert spaces
Y.-T. Lau	369	Global aspects of homoclinic bifurcations of three-dimensional saddles
Short Note **M. S. El Naschie**	383	Semiconductors and Cantorian spectra

	385	Announcement
	I	Sample layout for camera-ready copy submission

VOLUME 3 NUMBER 4 **1993**

B. Eckhardt	387	Escape rates and Hausdorff dimension of Julia sets
Y. Yamaguchi and **K. Tanikawa**	395	The first direct heteroclinic tangency theorem in two-dimensional maps
T. Kapitaniak	405	Stochastic resonance in chaotically forced systems
M. Conrad	411	Fluctuons—I. Operational analysis
M. O. Vlad	425	A rare event approach to fractal time survival statistics
Zhen-Shan Lin, Jian Liu, Xin-Hou Hua and **Fu-Qing Zhang**	431	Lyapunov exponent model of long term forecast
Yinshui Fan and **A. V. Holden**	439	Bifurcations, burstings, chaos and crises in the Rose–Hindmarsh model for neuronal activity
P. H. Borcherds and **G. P. McCauley**	451	The digital tent map and the trapezoidal map
J. Koyama and **H. Hara**	467	Fractional Brownian motions described by scaled Langevin equation
M. S. El Naschie	481	Semiconductors, Fermi statistics and multi-dimensional Cantor sets
Short Note **M. S. El Naschie**	489	Penrose tiling, semi-conduction and Cantorian $1/f^{\alpha}$ spectra in four and five dimensions
	493	Announcement
	I	Sample layout for camera-ready copy submission

VOLUME 3 NUMBER 5 **1993**

M. C. Kube, S. T. Pride and **J. L. Hudson**	495	Local analysis of time series from the oscillatory electrocatalytic reduction of hydrogen peroxide
M. O. Vlad	509	A fractal approach for the statistics of extremes with application to evolutionary biology
J. P. Cusumano and **B.-Y. Bai**	515	Period-infinity periodic motions, chaos, and spatial coherence in a 10 degree of freedom impact oscillator

L. Pellegrini, C. Tablino Possio, S. Albertoni and **G. Biardi**	537	Different scenarios in a controlled tubular reactor with acountercurrent coolant
G. C. Das and **K. M. Sen**	551	Transient behaviour of cylindrical solitons in multi-component plasma with negative ions
M. Conrad	563	Fluctuons—II. Electromagnetism
Zhi-Min Chen	575	A note on Kaplan–Yorke-type estimates on the fractal dimension of chaotic attractors
M. S. El Naschie	583	KAM orbits and dimensional criticality
	587	Announcement
	I	Sample layout for camera-ready copy submission

VOLUME 3 NUMBER 6 **1993**

T. F. Sturm	589	A stochastic process for fractal design
Yin-Shui Fan and **T. R. Chay**	603	Crisis transitions in excitable cell models
M. G. Rosenblum	617	A characteristic frequency of chaotic dynamical system
M. Wadati, K. Hikami and **H. Ujino**	627	Integrability and algebraic structure of the quantum Calogero–Moser model
Qin Meng-Zhao and **Zhu Wen-Jie**	637	Volume-preserving schemes and applications
Y. Kayama, M. Tabuse, H. Nishimura and **T. Horiguchi**	651	Characteristic parameters and classification of one-dimensional cellular automata
V. N. Ermakov	667	Critical temperature of soliton state stability in one-dimensional systems
M. S. El Naschie	675	On dimensions of Cantor set related systems
M. Gauthier, M. Cossette, C. Rioux and **R. J. Slobodrian**	687	Real and simulated fractal aggregates
C. A. Reiter	695	Fractals and generalized inner products
	715	Corrigendum
	I	Volume 3 Title Page, Volume Contents and Author Index
	IX	Sample layout for camera-ready copy submission